REMARKS

Claims 1-24 are pending in the application. Claims 1-24 were rejected under 35 U.S.C. §103(a) as being unpatentable over Marash (U.S. Patent No. 6,198,693). By this amendment, claims 1, 3, 6, 8, 10, 13-16, 19 and 21-24 are amended and claims 12 and 20 are canceled. Applicants respectfully request reconsideration of claims 1-11, 13-19, and 21-24 in light of the following remarks.

Claim Amendments

The present application includes three independent claims: 1, 14 and 21. Each of the claims is amended herein to include "transmitting a stimulus" and "receiving a response to the stimulus". These amendments are supported in the application and do not introduce new matter. For example, the original claims of the parent application (U.S. Serial No. 09/528,055), which is incorporated by reference into the present continuation application, included similar limitations. The remaining claim amendments were made to provide clarification and make the dependent claims conform with the independent claims. All amendments are supported in the application and do not introduce new matter.

Claim Rejections Under § 103(a)

Claims 1-24 were rejected under 35 U.S.C. §103(a) as being unpatentable over Marash (U.S. Patent No. 6,198,693).

As mentioned, the present application includes three independent claims: 1, 14 and 21. Each of the independent claims, as amended herein, recites a method of artifact rejection that includes: (1) transmitting a stimulus; (2) receiving a response to the stimulus; (3) calculating a noise power from the response (or from a noise

component thereof); (4) storing the response (or a component thereof) in one of a plurality of buffers; and (5) selecting a combination of the plurality of buffers having a lowest noise power. Independent claims 1 and 14 also recite: (6) calculating a signal based on the selected combination of buffers. Notably, the methods are directed to artifact rejection, wherein artifacts are noise as opposed to desired aspects of the response.

In order to calculate the noise power (step 3 above) from a response (or from a noise component thereof), the stimulus that generates the response must be known. That is, if the stimulus is not known, one cannot distinguish between desired aspects of the response and noise. Controlling the stimulus by transmitting the stimulus (as recited in the claims) is one way to ensure that the stimulus is known, thereby allowing one to distinguish between desired aspects of the response and noise.

Marash does not teach or suggest transmitting a stimulus and receiving a response to the stimulus as part of an artifact rejection method. Rather, Marash teaches a system and method for finding the direction of a wave source. The system and method of Marash does not transmit and receive, it only receives. Further, because Marash is directed to finding the source of a transmission, it cannot teach or suggest both transmitting and receiving, as recited in the claims. For at least this reason, Marash cannot render obvious claims 1, 14 or 21, or claims that depend therefrom.

Further, rather than: (1) transmitting a stimulus; (2) receiving a response to the stimulus; and (3) calculating a noise power from the response (or from a noise component thereof), as recited in the claims, Marash teaches using a lowest signal power over a predetermined interval as the noise power. (See Marash, 9:16-32; Figure 6A.) This approach is arbitrary and would not be useful in the claimed

artifact rejection methods. That is, assigning a lowest signal power over a predetermined interval as the noise power, as taught by Marash, does not distinguish between desired aspects of a signal and noise. It simply assumes that the lowest signal over an interval is noise. By teaching such an approach, Marash teaches away from: (1) transmitting a stimulus; (2) receiving a response to the stimulus; and (3) calculating a noise power from the response (or from a noise component thereof), as recited in the claims.

The pending claims further recite: (4) storing the response (or a component thereof) in one of a plurality of buffers; (5) selecting a combination of the plurality of buffers having a lowest noise power. Independent claims 1 and 14 (and dependent claim 22) also recite: (6) calculating a signal based on the selected combination of buffers. Marash does not teach or suggest these steps. Rather, once Marash assigns a noise power, Marash simply uses the signal power of a **single**, current block to calculate the signal to noise ratio for that block. See Marash, 9:29-31; Figure 6A. To the extent Marash teaches a method that does not include: (4) storing the response (or a component thereof) in one of a plurality of buffers; (5) selecting a combination of the plurality of buffers having a lowest noise power; and (6) calculating a signal based on the selected **combination** of buffers, as recited in the pending claims, Marash teaches away from the claimed methods.

The Office Action indicates that "Marash teaches an alternative way of splitting the signal, calculating noise power, calculating signal power for calculating signal-to-noise ratio. Marash teaches a way is not teach away." (Office Action, pp. 9-10.) However, according to the MPEP: "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would **lead away** from the claimed invention." (emphasis added). Teaching a different

way to calculate signal-to-noise ratio, a way that would not be useful in the claimed methods of artifact rejection, would indeed **lead away** from the claimed invention. Marash therefore teaches away from the claimed methods.

The Office Action notes that Marash makes reference to computational efficiency. To this end, Marash states:

> The present invention has the advantage of being computationally efficient **because it does not involve a two-dimensional search of space**, as a beamformer would require.

Marash, 3:38-41 (emphases added). This reference to computational efficiency relates to identifying a direction from which sound emanates. It does not relate to calculating a signal to noise ratio, which Marash uses to verify the validity of the source direction. Indeed, the very next line of Marash states:

> It also has the advantage of performing reliably in a noisy environment **because it verifies the validity of the source direction** under a variety of measurement criteria and repeats the measurements if necessary.

Marash, 3:41-44 (emphases added). Thus, Marash's reference to computational efficiency does not relate to calculating a signal to noise ratio. Even if it did, such a statement would not render obvious non-disclosed methods that may also be considered computationally efficient. Further, to the extent the pending claims recite steps different than and/or beyond those disclosed in Marash, one could argue that such methods would not be considered as computationally efficient as the method taught by Marash. To this end, Marash's statement that his present invention is computationally efficient teaches away from methods that include steps that are different than and/or beyond those disclosed in Marash, such as the methods recited the pending claims.

The Office Action repeatedly refers to "design needs" as potentially prompting differences between Marash and the claimed inventions. In some instances, the Office Action cites to a Digital Signal Processing text by Proakis et al. as disclosing certain elements. Applicants note that the chapter of the text that is cited is directed to "Efficient Computation of the DFT [Discrete Fourier Transform]: Fast Fourier Transform Algorithms." The teachings of the text are not specific to artifact rejection and do not specifically teach the elements of the claims. For example, the text teaches using eight buffers when computing a Discrete Fourier Transform. The text does not teach or suggest using eight buffers when storing a response in an artifact rejection method, as recited in claim 8 (and any similar claims).

In other instances, the Office Action does not cite any references that teach or suggest the limitations that are not disclosed in Marash and are recited in the claims. In such instances, the Office Action indicates that those aspects of the claimed methods would have been "obvious to try" even though Marash does not disclose those aspects of the claimed methods.

To reject a claim based on the "obvious to try" rationale, the following must be articulated:

> (1) a finding that at the time of the invention, there had been a recognized problem or need in the art, which may include a design need or market pressure to solve a problem;
>
> (2) a finding that there had been a finite number of identified, predictable potential solutions to the recognized need or problem;
>
> (3) a finding that one of ordinary skill in the art could have pursued the known potential solutions with a reasonable expectation of success; and

> (4) whatever additional findings based on the Graham factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.
>
> * * *
>
> If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious to one skilled in the art.

(Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in KSR International Co. v. Teleflex, Inc., Section E "Obvious To Try"—Choosing From a Finite Number of Identified, Predictable Solutions, With Reasonable Expectation of Success, Federal Register Vol. 72, No. 195, October 10, 2007.)

As to claim 1 (and any claims that include the same or similar limitations), the Office Action applies the "obvious to try" rationale to reject a method of artifact rejection that includes: splitting a response into a noise component and a signal component; and/or selecting a combination of a plurality of noise buffers having a lowest noise power. The Office Action states that there may be: (1) "a design need of determining noise power;" (2) a "purpose of being computationally efficient," and (3) "a number of identified, predictable solutions (e.g., other convenience ways, see col. 9 lines 23-24) to the recognized need." However, the cited portion of Marash, which states: "The noise power can be measured in many ways," does not support a finding that there is a **finite** number of identified, predictable potential solutions to a recognized need or problem. Also, reliance on Marash to support such a finding is improper because, as discussed above, the signal-to-noise ratio teachings of Marash would not be useful in the claimed artifact rejection methods. Finally, artifact rejection is a broad field that does not have a **finite** number of identified, predictable potential solutions. Thus, the Office

Action is devoid of the required "finding that there had been a **finite** number of identified, predictable potential solutions to the recognized need or problem."

The Office Action is also devoid of "a finding that one of ordinary skill in the art could have pursued the **known** potential solutions with a reasonable expectation of success." Again, because artifact rejection is a broad field, there is not a group of **known** potential solutions that could have been pursued with a reasonable expectation of success.

Applicants submit that the rejection of claim 1 (and any claims that include the same or similar limitations) based on the "obvious to try" rationale should be withdrawn because, if any of the "obvious to try" findings cannot be made, the rationale cannot be used to support a conclusion that a claim would have been obvious to one skilled in the art.

For at least the foregoing reasons, Marash cannot render obvious independent claims 1, 14 or 21, or claims that depend therefrom.

CONCLUSION

Applicants believe that the pending claims are in condition for allowance. Should the Examiner disagree or have any questions regarding this submission, Applicants invite the Examiner to telephone the undersigned at (312) 775-8096 for an interview. A Notice of Allowance is courteously solicited.

Respectfully submitted,

Dated: August 15, 2008

/Jonathan M. Rushman/
Jonathan M. Rushman
Registration No. 55,870

McANDREWS, HELD & MALLOY, LTD.
500 West Madison Street
34th Floor
Chicago, Illinois 60661
Telephone: (312) 775-8000
Facsimile: (312) 775-8100